

REMARKS

Claims 29-31, 34-36, 39 and 44-48 are now in the application. Claim 29 has been amended to clarify that the chemical conversion coat remains even after the washing and to further recite that “the at least one member is selected from the group consisting of amino group containing silane coupling agent, hydrolysates thereof and polymers thereof, has a content of 5 to 5,000 ppm as a concentration of solid matter” and “the chemical conversion coating agent has a pH of 1.5 to 6.5”. The amendments to claims claim 29 can found in claims 32 and 40. The amendments to the claims do not introduce any new matter.

Claims 29, 31-43, 47 and 48 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of JP 59-064781. The cited references do not render obvious claims 29, 31-43, 47 and 48.

JP 02-240295 suggests a pretreatment step in advance of an electrodeposition coating step (please see the translation of JP 02-240295 at page 3, lines 11-16), and the purpose of the pretreatment step is supposedly to impart corrosion resistance to steel plates, and to improve adhesion between coating and steel plate (please see the translation of JP 02-240295 at page 3, lines 17-19).

However, regarding the surface treatment composition used in the pretreatment step, there is no description that the composition used in the pretreatment step is a chemical conversion treatment agent, or zirconium or titanium based composition. Accordingly, JP 02-240295 fails to teach that the claimed chemical conversion coating composition.

JP 59-064781 fails to overcome the above discussed deficiencies of JP 02-240295 with respect to rendering unpatentable the present invention. In the coating film formation method of JP 59-064781, a composition is applied to a metal surface, and the applied composition is dried to form a coating film without washing with water (please see the translation of JP 59-064781 at page 3, lines 7-15).

In addition, a cation electrodeposition coating is not disclosed in JP 59-064781, but a steel plate is disclosed as a metal base material.

Since the surface treatment agents described in JP 59-064781 need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

To emphasize a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with JP 59-064781.

Similarly, there is no indication in JP 59-064781 that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with JP 59-064781 has resulted from improper hindsight, which is made possible only by referring to the present specification.

JP59-064781 does not disclose reasons why the pH is adjusted. Therefore, a chemical conversion coat is not formed due to adjustment of the pH is not considered.

Moreover, as is apparent from the enclosed Declaration under 37 CFR 1.132 and experimental results, a difference can be seen in the effects of adhesiveness (between the metal base material and cation electrodeposition coating film) between a test sample prepared with the treatment according to the present composition and that prepared with the composition of JP 59-064781. It is believed by applicant that a portion of this difference in adhesiveness is caused by the respective pretreatment composition having the claimed pH values. Along these lines, please see the description concerning the effects of adjusting the pH at Paragraph [0043] of the specification.

Claim 30 was rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of JP 59-064781 and US Patent Application Publication 2001/0037748 to Shimakura et al. (hereinafter also referred to as “Shimakura”). The cited references do not render obvious the present invention. Shimakura fails to overcome the above discussed deficiencies of JP 02-240295 and JP 59-064781 with respect to rendering unpatentable the present invention. The above discussions of JP 02-240295 and JP 59-064781 are incorporated herein by reference.

Shimakura suggests applying a metallic surface treatment agent to a substrate and drying the applied metallic surface treatment agent to form a coating film (please see Paragraph [0029]).

Moreover, there is no description that cationic electrodeposition coating is conducted after the application of the metallic surface treatment agent. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]). Accordingly, claim 30 is patentable for at least those reasons as to why claim 29 is patentable.

In addition, since the surface treatment agents described in JP 59-064781 and Shimakura need drying after application to the metal material, the inventions therein differ fundamentally from the present invention in this point.

In other words, the mechanism of forming a coating film in the present invention is completely different from that of JP59-064781 and Shimakura. The coating composition of the present invention is categorized as a reaction type surface treatment agent, and the coating compositions of JP59-064781 and Shimakura are categorized as application type surface treatment agents. The coating film is formed by heating and drying the surface treatment agent in case of an application type surface treatment agent being used, whereas the coating film is formed to be a chemical conversion coating film by chemical reaction between a metal material and a surface treatment agent in case of a reaction type surface treatment agent being used.

It is difficult to use the application type surface treatment agent to form a uniform coating film on the surface of complex shaped objects such as an automobile body, because applying and

drying a uniform coating film on the surface of complex shaped objects are difficult, even though applying and drying a uniform coating film on the surface of flat plate is not so difficult.

In the present invention, a uniform coating film is formed even on the surface of complex shaped objects such as an automobile body, because a uniform coating film is formed on the surface of objects which contact with the surface treatment agent when a reaction type surface treatment composition is used (please see paragraph [0018] of the present specification).

On the other hand, it is difficult to form a coating film on the surface of iron material by using chemical conversion coating agents of the prior art. In contrast, a coating film with sufficient adhesiveness and corrosion resistance can be formed by using the chemical conversion coating agent of the present invention (please see paragraph [0016] of the present specification).

In addition, the chemical conversion treatment is conducted prior to a cation electrodeposition coating which is conducted as a wet process by immersing an object such as automobile body into the water soluble cation electrodeposition coating composition.

In the surface treatment method of the present invention, a chemical conversion coating film is formed by chemical reaction, strongly adheres to the surface of the object, and can be rinsed with water without drying. Therefore, all of the steps from surface treatment to cation electrodeposition coating can be conducted by wet processes.

As stated above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based

treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with JP 59-064781 and Shimakura.

Similarly, there is no indication in JP 59-064781 and Shimakura that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with JP 59-064781 and Shimakura has resulted from improper hindsight, which is made possible only by referring to the present specification.

Claims 29-39, 47 and 48 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent Application Publication 2001/0037748 to Shimakura et al. The cited references do not render obvious the present invention. The above discussion of JP 02-240295 is incorporated herein by reference.

Shimakura fails to overcome the above discussed deficiencies of JP 02-240295 with respect to rendering unpatentable the present invention. Shimakura suggests applying a metallic surface treatment agent to a substrate and drying the applied metallic surface treatment agent to form a coating film (please see Paragraph [0029]).

Moreover, there is no description that cationic electrodeposition coating is conducted after the application of the metallic surface treatment agent. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

Since the surface treatment agents described in Shimakura need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As mentioned above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Shimakura.

Similarly, there is no indication in Shimakura that the cationic electrodeposition coating is conducted after surface treatment. Also, there is no indication in Shimakura that a steel plate can be used as a substrate. Therefore, the reasoning to combine JP 02-240295 with Shimakura has resulted from improper hindsight, which is made possible only by referring to the present specification.

Claims 44-46 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of JP 59-064781 and US Patent 6,180,177 to Nagashima. The cited references do not render obvious the present invention. Nagashima fails to overcome the above discussed deficiencies of JP 02-240295 with respect to rendering unpatentable the present invention. The above discussions of JP 02-240295 and JP 59-064781 are incorporated herein by reference.

The surface treatment composition for the metallic material in Nagashima is suggested to have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

Since the surface treatment agents described in JP 59-064781 need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As discussed above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with JP 59-064781 and Nagashima.

Similarly, there is no indication in JP 59-064781 and Nagashima that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with JP 59-064781 and Nagashima has resulted from improper hindsight, which is made possible only by referring to the present specification.

Claims 40-46 were rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent Application Publication 2001/0037748 to Shimakura et al. and US Patent 6,180,177 to Nagashima. The cited references do not render obvious the present invention. The above discussion of JP 02-240295 is incorporated herein by reference.

As discussed above, Shimakura suggests applying a metallic surface treatment agent to a substrate and drying the applied metallic surface treatment agent to form a coating film (please see Paragraph [0029]).

Moreover, there is no description that cationic electrodeposition coating is conducted after the application of the metallic surface treatment agent. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

Nagashima, as discussed above, suggests that the surface treatment composition for the metallic material have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

Since the surface treatment agents described in Shimakura and Nagashima need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As discussed above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Shimakura and Nagashima.

Similarly, there is no indication in Shimakura and Nagashima that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with Shimakura and Nagashima has resulted from improper hindsight, which is made possible only by referring to the present specification. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

Claims 29, 31, 34-36, 39-40 and 43-48 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent 6,180,177 to Nagashima. The cited

references do not render obvious the present invention. The above discussion of JP 02-240295 is incorporated herein by reference.

Nagashima, as discussed above, suggests that the surface treatment composition for the metallic material have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

However, Nagashima uses a water-based surface treatment composition in which a specific water soluble resin (phenol resin) is further required as an essential component. This water based surface treatment composition is an application type surface treatment agent, because the coating film is formed by drying the coating film after the surface treatment agent is applied on the surface of a metal material (please see column 7, lines 45 to 62 of Nagashima). The coating film is formed by a mechanism in which a water soluble resin is used as the film forming material. Such a mechanism is completely different from the mechanism of forming a coating film of the present invention in which a coating film of zirconium oxide is formed.

Although Nagashima discloses that the pH of the water-based surface treatment agent is from 2.0 to 6.5, the reason for adjusting the pH to be 6.5 or lower is to prevent the precipitation of water soluble polymer, and extend the lifetime of the water-based surface treatment agent. Such reasons for adjusting the pH are completely different from that for adjusting pH in the present invention, i.e. to promote etching of a substrate in order to form a chemical conversion coating film (please see paragraph [0043] of the present specification)

Since the surface treatment agents described in Nagashima needs drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As mentioned above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Nagashima.

However, as described above, the water-based surface treatment agent of Nagashima requires drying as an essential process, in order to form a coating film made of resin. In contrast, the composition of JP 02-240295 does not require a drying process after the pre-treatment process for anti-corrosion. Therefore, there is a disincentive against combining Nagashima and JP 02-240295.

Similarly, there is no indication in Nagashima that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with Nagashima has resulted from improper hindsight, which is made possible only by referring to the present specification.

Claim 30 was rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent 6,180,177 to Nagashima and US Patent Application Publication 2001/0037748 to Shimakura et al.

Nagashima, as discussed above, suggests that the surface treatment composition for the metallic material have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

As discussed above, Shimakura suggests applying a metallic surface treatment agent to a substrate and drying the applied metallic surface treatment agent to form a coating film (please see Paragraph [0029]).

Moreover, there is no description that cationic electrodeposition coating is conducted after the application of the metallic surface treatment agent. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

Since the surface treatment agents described in Nagashima and Shimakura need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As pointed out above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Nagashima and Shimakura.

Similarly, there is no indication in Nagashima and Shimakura that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with Nagashima and Shimakura has resulted from improper hindsight, which is made possible only by referring to the present specification. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

Claim 32-33, 37, 38, 41 and 42 were rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent 6,180,177 to Nagashima and JP 59-064781. The cited references do not render obvious the present invention. The above discussions of JP 02-240295 and JP 59-064781 are incorporated herein by reference.

Nagashima, as discussed above, suggests that the surface treatment composition for the metallic material have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

Since the surface treatment agents described in Nagashima and JP 59-064781 need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

As mentioned above, to emphasis a significant difference from the cited references, claim 29 has been amended to clarify that the chemical conversion coating film remains even after washing with water.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art may adopt a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Nagashima and JP 59-064781.

Similarly, there is no indication in Nagashima and JP 59-064781 that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with Nagashima and JP 59-064781 has resulted from improper hindsight, which is made possible only by referring to the present specification.

Claims 29, 32-43 and 47-48 were rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of US Patent 7,250,193 to Matsukawa et al in view of JP 02-240295.

Claims 29, 32-43 and 47-48 were rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of US Patent 7,250,193. Claims 29, 32-43 and 47-48 are not obvious over claims 1-8 of US Patent 7,250,193 since, among other things, the present claims recite “then washing the metal base material with water without drying”. On the other hand, the claims of US Patent 7,250,193 do not state this feature of “without drying”. In fact, the claims of US Patent 7,250,193 recite certain water-bourne resins and/or certain water-soluble resins, and the examples therein employing these types of resins include drying after washing and prior to the cation electrodeposition. It would not be obvious to exclude drying in the claimed embodiments that employ the various water-bourne resins and/or water-soluble resins. The embodiment of US Patent 7,250,193 using the alkaline treating step did not use drying after rinsing, but this embodiment is not explicitly stated in claims 1-8 of US Patent 7,250,193. It is further noted that “Comparative Example 1” and “Comparative Example 3” in US Patent 7,250,193 differ from an example of an inventive embodiment by excluding drying, as required by the present invention. Moreover, the claims of this application do not recite the water-bourne resins and/or water-soluble resins. Not to explicitly include or require the water-bourne resins and/or certain water-soluble resins would also not be obvious and certainly contrary to the claims of US Patent 7,250,193.

The mere fact that the cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or adequate rationale exists to do so. No such suggestion appears in the cited art in this matter nor has the requisite rationale been adequately articulated. The Examiner’s attention is kindly directed to *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007); *In re Lee* 61 USPQ2d 1430 (Fed. Cir. 2002), *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Also, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attainable by the present invention as discussed above such as the extremely small and substantially completely spherical fine particles needed to sustain a rejection under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, supra; *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966). As discussed above, the improved solubility is not suggested by the cited art.

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, supra; *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re Antonie*, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, supra, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

Application No.: 10/743,387

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The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 27617-00003-US from which the undersigned is authorized to draw.

Dated: November 5, 2009

Respectfully submitted,

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